

Application No.: 10/567,014
Art Unit: 1792

Amendment under 37 CFR §1.116
Attorney Docket No.: 081040

REMARKS

Please reconsider the application in view of the foregoing amendments and the following remarks.

Status of Claims

Claims 1 and 4-12 are pending in the present application. Claims 7-12 have been withdrawn from consideration. Claim 1 is herein amended. No new matter has been entered.

As to the Merits

Claim 1 was rejected under 35 U.S.C. 103 as being obvious over European Patent Application Publication No. 1336436 to **Sugimoto** in view of U.S. Patent No. 5,353,821 to **Franklin** in view of U.S. Patent No. 2003/0205246 by **Christman et al.**

Claims 4-6 were rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Application Publication No. 1336436 to **Sugimoto** in view of U.S. Patent No. 5,353,821 to **Franklin** in view of U.S. Patent No. 2003/0205246 by **Christman et al.** as applied to claim 1 and further in view of U.S. Patent No. 5,895,763 to **Edstrand et al.**

Applicants respectfully traverse the rejections.

None of Sugimoto, Franklin, Christman and Edstrand teach the following limitations of claim 1.

i) If the detected pressure (the cleaning fluid pressure inside the fluid delivery line near the drainpipe) exceeds a predetermined pressure, a cleaning fluid recovery process of stopping the cleaning fluid pump, thereby stopping supply of cleaning fluid to the drain pipe by the cleaning fluid pump, and opening a portion of the fluid drain line to the atmosphere to pass the cleaning fluid from the drainpipe through a cleaning fluid return line connected with the fluid delivery line and with the cleaning fluid tank and recover the cleaning fluid into the cleaning fluid tank is run.

Sugimoto describes the following in paragraphs [0011], [0012], [0033], [0034] and [0057].

[0011] when the pressure of the cleaning liquid exceeds a predetermined level, feeding a part of all of the cleaning liquid back into the reservoir tank.

[0012] According to the system for cleaning the drainage pipe in the movable equipment, the feed-back valve device is opened to feed the part or all of the cleaning liquid back into the reservoir tank from the feed-back pipe when the pressure of the cleaning liquid fed into the drainage pipe from the feed pipe exceeds the predetermined level. Therefore, the cleaning liquid does not flow into the drainage pipe at a pressure greater than the predetermined level.

[0033] The feed-back pipe 40 is a pipe for feeding a part or all of the cleaning liquid L back into the reservoir tank 20 from the branch feed pipes 31, 31....

[0034] The solution pressure adjustment feed-back valve 44 feeds a part of the cleaning liquid L flowing through the branch feed pipes 31, 31 into the reservoir tank 20 according to measurements taken by the pressure gauge 41 and the flow meters 33, 33 provided in the feed pipe 30, thereby serving to maintain the pressure and flow rate of the cleaning liquid L fed into the drainage pipe 91 from the feed pipe 30 at constant levels. The emergency feed-back valve 45 is opened to prevent the cleaning liquid L from flowing into the drainage pipe 91 from the feed pipe 30 when any of the pressure gauges provided in the cleaning system 10 indicates a pressure higher than a predetermined level.

[0057] Therefore, the emergency feed-back valve 45 of the feed-back pipe 40 is opened, whereby the cleaning liquid L in the feed pipe 30 is fed back into the reservoir tank 20 through the feed-back pipe 40. . . .

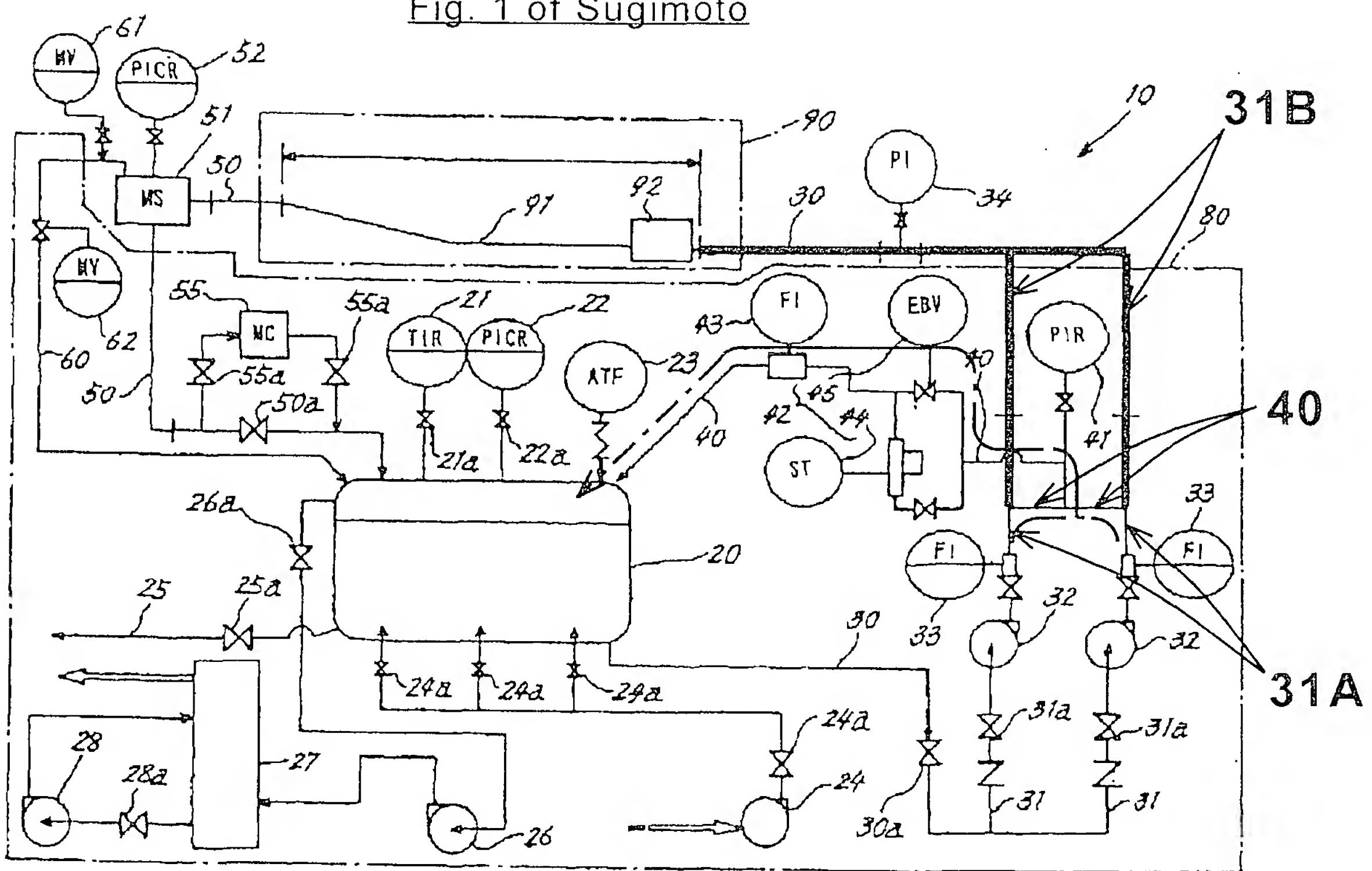
However, Sugimoto neither teaches nor suggests that when the pressure inside the drainage pipe 91 is high, the feed pump 32, 32 are stopped to recover the cleaning liquid L in the drainage pipe 91 into the reservoir tank 20.

Sugimoto teaches that when the pressure inside the drain age pipe 91 is high, the emergency feed-back valve 45 of the feed-back pipe 40 is opened to feed the cleaning liquid L in the drainage pipe 90 back into the reservoir tank 20 from the branch feed pipes 31, 31 and thereby prevent the cleaning liquid L from flowing into the drainage pipe 91 from the feed pipe 30 (see paragraphs [0033] and [0034]).

Further, Sugimoto teaches that when the pressure inside the drainage pipe 91 is high, the outside air introduction valve means 61 is opened to introduce the outside air into the drainage pipe 91 and thereby restore the inner pressure of the drainage pipe 91 to the atmospheric pressure, whereby the inner pressure of the drainage pipe 91 is prevented from increasing to a high level (see paragraph [0039]).

However, in Sugimoto, the feed pump 32, 32 are not stopped. Therefore, even though the emergency feed-back valve 45 is opened, as shown in the Figure 1 below, while the cleaning liquid L fed from the feed pump means 32 is fed back into the reservoir tank 20 through a path represented by dot-dash line, that is, through the feed-back pipe 40 diverging from the branch feed pipes 31, 31, the cleaning liquid L still continues to be fed from the feed pump means 32 into the branch feed pipes 31A, 31A (the figure below is Fig. 1 of Sugimoto, and the dot-dash line, heavy solid line and reference numbers 31A, 31B and 41 are added by the applicants).

Fig. 1 of Sugimoto



Therefore, as described by Sugimoto in paragraphs [0012], [0034] and [0057], the cleaning liquid L may be prevented from flowing into the drainage pipe 91 from the feed pipe 30 represented by heavy solid line, however, the cleaning liquid L in the feed pipe 30 and branch feed pipes 31B, 31B which are represented by heavy solid line and the cleaning liquid L in the drainage pipe 91 would not be recovered into the reservoir tank 20. Sugimoto neither teaches nor suggests that the cleaning liquid L in the feed pipe 30 and branch feed pipes 31B, 31B which are represented by heavy solid line and the cleaning liquid L in the drainage pipe 91 are recovered into the tank 20.

In contrast, in claim 1 of the present invention, if the cleaning fluid pressure inside the fluid delivery line near the drain pipe exceeds a predetermined pressure, both the step of stopping the cleaning fluid pump and the step of opening a portion of the fluid drain line to the atmosphere are performed, and thereby the cleaning fluid in the drainpipe is passed through the cleaning fluid return line connected with the fluid delivery line and with the cleaning fluid tank, and is recovered into the cleaning fluid tank. Therefore, the cleaning fluid in the drain pipe which leads to the cleaning fluid tank brought to the negative pressure is quickly recovered into the cleaning fluid tank through the fluid delivery line and the cleaning fluid return line, and the pressure inside the drain pipe is early reduced to a predetermined low pressure.

On the other hand, in Sugimoto, because the feed pump means 32, 32 are not stopped, it takes a time for the inner pressure of the feed pipe 30 and branch feed pipes 31, 31 represented by heavy solid line and the inner pressure of the drainage pipe 91 to be reduced to a safe pressure, and therefore there still remains a risk of the cleaning liquid L's leaking from the drainage pipe 91 during this time.

Thus, compared with Sugimoto, in the invention of claim 1 it is possible to more surely prevent the cleaning fluid from leaking from the drain pipe.

As described above, the invention according to claim 1 has a novel structure which none of Sugimoto, Franklin, Christman and Edstrand disclose, and produces a characteristic outstanding effect.

Therefore, the invention according to claim 1 is not obvious from Sugimoto, Franklin, Christman and Edstrand. Accordingly, Applicants respectfully request that these rejections be withdrawn.

Conclusion

The Claims have been shown to be allowable over the prior art. Applicants believe that this paper is responsive to each and every ground of rejection cited in the Office Action dated January 21, 2010, and respectfully request favorable action in this application. The Examiner is invited to telephone the undersigned, applicants' attorney of record, to facilitate advancement of the present application.

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If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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